

**Notice of Allowability**

Application No.

10/674,369

Examiner

David Nhu

Applicant(s)

MAA ET AL.

Art Unit

2818

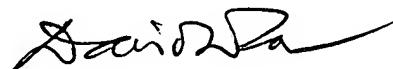
-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/14/04.
2. ☒ The allowed claim(s) is/are 1-4 and 6-14.
3. ☒ The drawings filed on 29 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment.
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the change and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

*In claims:*

**Claims 1,13** "*at an ion dose of between about*" should be -- *at an ion dose of between about--*  
**Claim 12**, "*depositing a layer of silicon-germanium to a thickness of between about 20 nm to 100 nm*" should be -- *depositing a layer of silicon-germanium to a thickness of between about 20 nm to 1000 nm-- See claim 4 (current amended).*

### REASONS FOR ALLOWANCE

2. Claims 1-4, 6-14 are allowed.

3. The following is an examiner's statement of reasons for allowance: None of the references of record teaches or suggests as cited in claims 1, 10: implanting hydrogen ions in the silicon-germanium layer, including implanting hydrogen ions taken from the group of hydrogen ions consisting of H<sup>16</sup> ions and H<sup>17</sup> ions, at an ions dose of between about  $1 \cdot 10^{16} \text{ cm}^{-2}$  and  $5 \cdot 10^{17} \text{ cm}^{-2}$  at an energy of between about 1 keV to 300 keV (as cited in claim 1); bonding the silicon/silicon-germanium portion to the glass substrate by direct wafer bonding with the silicon-germanium layer in contact with the glass substrate to form a bonded entity; curing the bonded entity at a temperature of between about 150 °C to 250 °C for a time of between about one hour to fourteen hours; and thermally annealing the bonded entity at a temperature of between about

Art Unit: 2818

350 °C to 700 °C for a time of between about 30 minutes to four hours to split the bonded entity into a silicon/silicon-germanium portion and a silicon-germanium glass portion and to relax the silicon-germanium layers (as cited in claim 10).

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### CONCLUSION

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Fitzgerald (6,750,130 B1): Hetero-integration of Materials Using Deposition and Bonding.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Nhu, (571)272-1792. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM.

The examiner's supervisor, David Nelms can be reached on (571)272-1787.

*The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.*

*Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.*

David Nhu



October 16, 2004

DAVID NHU  
PRIMARY EX